Expanding CalCOFI Northward; Institutions and Sampling Programs

presented by

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As CalCOFI examines its future, there are compelling oceanographic and ecological reasons to reinstitute some of the northerly lines. Here, focusing on the Monterey Bay region, I discuss the institutional interest in participating and describe a few pertinent programs with strong potential to interact with the CalCOFI program.

The Monterey Bay region hosts a large and varied group of marine science facilities, including 9 academic institutions, 3 state and 7 federal agency laboratories, 3 military research organizations with marine emphasis, and several private and NGO institutions (including the Monterey Bay Aquarium and its research institute, MBARI). In 1998, the National Ocean Conference was held in Monterey and the visibility provided the stimulus for these diverse organizations to form a cooperative group, called the Monterey Bay Crescent Ocean Research Consortium (MBCORC; see http://www.mbari.org/~andrea/MBCORC/). A principal purpose of MBCORC is to provide a mechanism for these institutions to develop cooperative and collaborative activities of mutual interest in educational, research, and operational ocean-related activities. Sampling and fieldwork is obviously one avenue for collaboration.

The kind of program MBCORC can develop is exemplified by the Central California Environmental Prediction Initiative (CCEPI). Although principally a modeling program using coupled ocean/atmosphere models to benefit both marine and agricultural interests, CCEPI will also incorporate elements of data assimilation and will require additional monitoring in the region. CCEPI is presently in the planning phase and a workshop is planned for February, 2002.

While field sampling efforts of the scale and magnitude of CalCOFI do not exist in the region, there are a variety of pertinent programs. The NMFS Santa Cruz laboratory, for example, has conducted an annual midwater trawl survey in May to June each year since 1983. Oriented to develop indices of year-class strength for stock assessments in groundfish, these surveys have also conducted CTD survey grids from southern Monterey Bay northward to Bodega Bay. Oceanographic results have been documented in a series of NOAA Technical Memoranda.

The Monterey Bay Aquarium Research Institute (MBARI), located in Moss Landing, has regular research cruises as well as two OASIS moorings collecting surface meteorological and ocean data, ADCP, and subsurface CTD data in Monterey Bay (locations 36.75 N -122.03 W and 36.70N -122.39 W). MBARI collaborates with UC Santa Cruz and the Naval Postgraduate School Department of Oceanography on the "Studies of Ecological and Chemical Responses to Environmental Trends" (SECRET) project. Since 1997, SECRET has been occupying 10 stations on CalCOFI line 67 extending 250 km offshore on a quarterly basis. Data collection includes CTD casts (to

1000 m), chlorophyll, nutrients, productivity, and bongo tows. The duration of the project is uncertain, but interest in continuing the monitoring is high.

The Monterey Bay National Marine Sanctuary (MBNMS) is the largest in the nation, covering 444 km of central California shoreline and extending an average of 32 km offshore. The Sanctuary Integrated Monitoring Network (SIMoN) has been designed in partnership with the regional science and management community to identify natural and human induced changes to the MBNMS. SIMoN has been developed as a prototype for the national sanctuary program and has received significant funding for implementation. Although sampling of the kind done for CalCOFI will represent a relatively small part of the monitoring program, there is interest in collaborating with CalCOFI, both for access to historical datasets and to assure continuity of selected time series.

Consideration of northward expansion of future iterations of CalCOFI should not stop at Monterey Bay. Opportunities exist with marine laboratories in northern California, where ocean data are lacking. As an example, Humboldt State University has a 28 m vessel (R/V Coral Sea) outfitted for oceanographic sampling. It is presently used for two cross-shelf cruises per year in the winter and spring along the Eureka line, on 8 km spacing out to 40 km. Many of their cruises are related to education (in their undergraduate program) as opposed to research, but they are interested in promoting more research use of the vessel through contracts and grants. Interaction with CalCOFI would provide an opportunity for training, for incorporation of techniques consistent with CalCOFI sampling, and possible development of a longer-term program beneficial to CalCOFI objectives. Even farther north, CalCOFI should examine opportunities to interact with the North Pacific GLOBEC program and its sampling efforts off Oregon.

In general, significant opportunities exist for CalCOFI to consider expansion northward. As described above, there are several programs pertinent to CalCOFI as well as institutional and intellectual interest to contribute. CalCOFI and its time series enjoy a good reputation in central California and the time is opportune to examine new levels of cooperation. Needed, however, are clearer definitions of how such a program would relate to larger oceanographic sampling efforts (such as GOOS) and identification of funding support to assure program continuity. Given the nature of internal and grant funding available at most institutions, long-term commitments are simply not possible. There is general consensus that a multi-institutional program of monitoring could be developed in a cost-effective manner, but would require commitments of state and federal agency support.